VANTAGE-HD
&
VANTAGE-HD2
User Manual

Issue 1.3.5a

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Welcome to the Vantage-HD Manual

For technical support please see the Home Theater section of our website http://www.calibreuk.com/home_theater.php.

If the web site does not provide the information you require, please contact your dealer, installer or distributor in the first instance, or if they are unable to resolve your query please

e-mail vantage-support@calibreuk.com.

VANTAGE MANUAL REVISION

Note this manual details the Vantage-HD functions and features assuming that you have installed issue 1.3.4 Firmware. Earlier versions of firmware may not include all the items described in this manual See section 1.8 for details on updating the firmware.

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Calibre operates a policy of continued product improvement, therefore specifications are subject to change without notice as products are updated or revised.

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PRODUCT DESCRIPTION

1.1. Product Overview

Vantage-HD is a state of the art digital image processor which provides market leading HD& SD per-pixel multiple low-angle aperture-adjusted motion-adaptive de-interlacing and automatic film pull-down correction for 3:2, 2:2 and non-standard and broken cadences, significantly outperforming the capabilities of benchmark competitor products.

Vantage-HD2 includes additional processing features to allow output of 720p24, 1080p24 and 48p signals from 24p inputs. Vantage-HD2 also includes a special passive cooling device for allow silent operation.

Vantage-HD features studio-grade image processing algorithms for the very best scaling, film and video noise reduction, MPEG artifact reduction and automatic audio time-line correction to maintain lip-sync. Vantage-HD is a very flexible video and audio router with multiple HDMI and analog input channels, digital, analog and optical audio support and optional HD-SDI compatibility.

Vantage-HD has special algorithms for plasma image enhancements, significantly reducing plasma noise and improving grayscale reproduction. Image quality on large-screen LCDs are also much improved by Vantage-HD. For projectors, Vantage-HD features the sharpest most flexible keystone correction on the market and there is also an image warping option available for complex geometric correction.

1.2. Packing List

The following items are included with your Vantage-HD, if any items are missing please contact your distributor.

1. Vantage-HD
2. Power supply
3. Power cord
4. CD containing this manual
5. Remote control + batteries
6. Warranty card

1.3. You Will Need

The following items will be required but are not supplied with your Vantage-HD

1. A suitable display device - see section 10.1 for details of the output modes supported by Vantage-HD
2. Cable to connect to your display device
3. A signal source - see section 11 for details of the supported inputs
4. Cable to connect to your signal source
5. Audio processor and cable (required if not using HDMI to connect to the display device).

1.4. Physical Dimensions

The Vantage-HD is approximately 16.4" (416mm) by 10" (253mm) by 3.4" (85mm) WxDxH

NOTE dimensions are excluding optional rack mounting kit.

An optional 19" by 2U rack mounting kit is available. Each bracket is attached by 2x 10-32 1/2" long pan head screws.

1.5. Controlling Your Vantage-HD

Setting up and controlling your Vantage-HD is achieved by a simple to use On Screen Display (OSD), moving around the OSD can be achieved by using the navi-keys on the front of the Vantage-HD or by using the remote control

Batteries are not installed when the unit ships to maximise their life.

PLEASE ENSURE THAT THE BATTERIES ARE INSERTED IN THE WAY SHOWN WITHIN THE BATTERY COMPARTMENT OF THE REMOTE CONTROL.

WHEN BATTERIES BECOME DISCHARGED PLEASE REMOVE THEM IMMEDIATELY AND DISPOSE OF THEM IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE BATTERY MANUFACTURER.

IF THE REMOTE CONTROL IS TO BE LEFT UNUSED FOR AN EXTENDED PERIOD OF TIME PLEASE REMOVE THE BATTERIES TO PREVENT POSSIBLE DAMAGE CAUSED BY LEAKING.

1.6. Serial Control

Vantage-HD has a serial port which allows for the unit to be controlled via an integrated home control system. The connector on Vantage-HD is a 9 way D-Type (female).

Pin 2 = Tx Pin 3 = Rx Pin 5 = Ground

The type of cable required will depend on your home control system but typically a 9 way Male to 9 way Female connected straight through will allow serial control.

The serial control codes can be downloaded from www.calibreuk.com, please also note that serial control may require the application of a firmware upgrade to your unit, via its USB port.

NOTE : Whilst in standby mode the only serial command that the Vantage-HD will respond to is “Power On”.

1.7. Infrared Control

The infrared control codes can be downloaded from www.calibreuk.com

1.8. Firmware Updates

Calibre operates a policy of continued product improvement. As a result we may periodically issue firmware updates; these are downloaded to Vantage-HD via the USB port.

Full details of the updates and how to download them are available on our website www.calibreuk.com

1.9. Rear Panel Connections

The following inputs are located on the rear panel of the Vantage-HD

1. Composite video via RCA jack (2x)
2. S-Video via 4 way mini DIN socket (2x)
3. Component video with or without separate sync via 3/4 RCA jack (2 sets)
4. HDMI version 1.1 (2x)
5. Expansion slot for input expander cards - takes HDMI card or HD-SDI card
6. Computer (SVGA) via 15 way HDD
7. Analog audio stereo pairs via RCA jack (4 sets)
8. S/PDIF coaxial audio (2x)
9. S/PDIF optical audio (2x)
10. Power jack

The following outputs are located on the rear panel of Vantage-HD

1. Analog video output via 15 way HDD (1x)
2. HDMI version 1.1 (1x)
3. Analog audio stereo pair via RCA jack (1 set)
4. S/PDIF coaxial audio (1x)
5. S/PDIF optical audio (1x)

Figure 1 below details the connections to Vantage-HD.

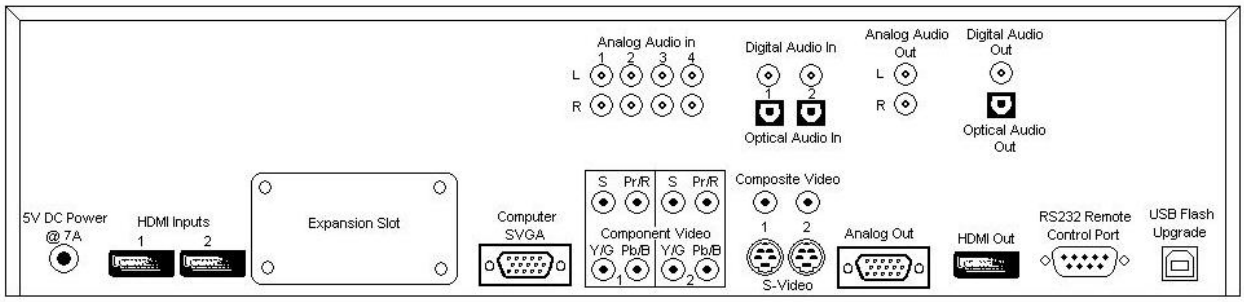


Figure 1 Rear Panel Connections

1.10. Overheat Indication

Should the video processor within the Vantage-HD get too hot it will automatically go into standby mode and the two front panel LEDs will flash red.

Should this happen we recommend that you clean the fan if it is clogged with dust, if it is not clogged then we recommend that you change the fan. If your model is a fanless Vantage-HD2 the overheat indication is very unlikely unless you have installed it with a very hot device underneath and/or with the cooling vents obstructed.

When the processor has cooled sufficiently pressing the standby button will bring the unit out of standby.

1.11. HDCP Compliance Indication

FULL HDCP COMPLIANCE: The Connection/HDCP status LED (Left-most LED) and displayed image now indicate the following conditions:

- OFF: No valid input signal detected;
- GREEN: Non-HDCP protected input signal detected - Non-HDCP protected input signals can be viewed at any output resolution on any display;
- AMBER IMAGE:HDCP protected input signal detected - Limited Output mode - If a selected input signal is HDCP protected and the connected display is not HDCP certified then the protected signal can only be viewed when the output resolution selection is no greater than 480 lines. Anything above will result in a HDCP protected blank indicated by an Amber/Yellow screen and RED status LED;
- RED: HDCP protected input signal detected - HDCP certified Display found - If a selected input signal is HDCP protected and the display is HDCP compatible, there will be no limits on the choice of output resolution.

1.12. Expansion Modules

Three expansion module are available for your Vantage-HD, these are

1) Dual 1.3 HDMI input
2) Dual HD SDI input
3) Single HD SDI input

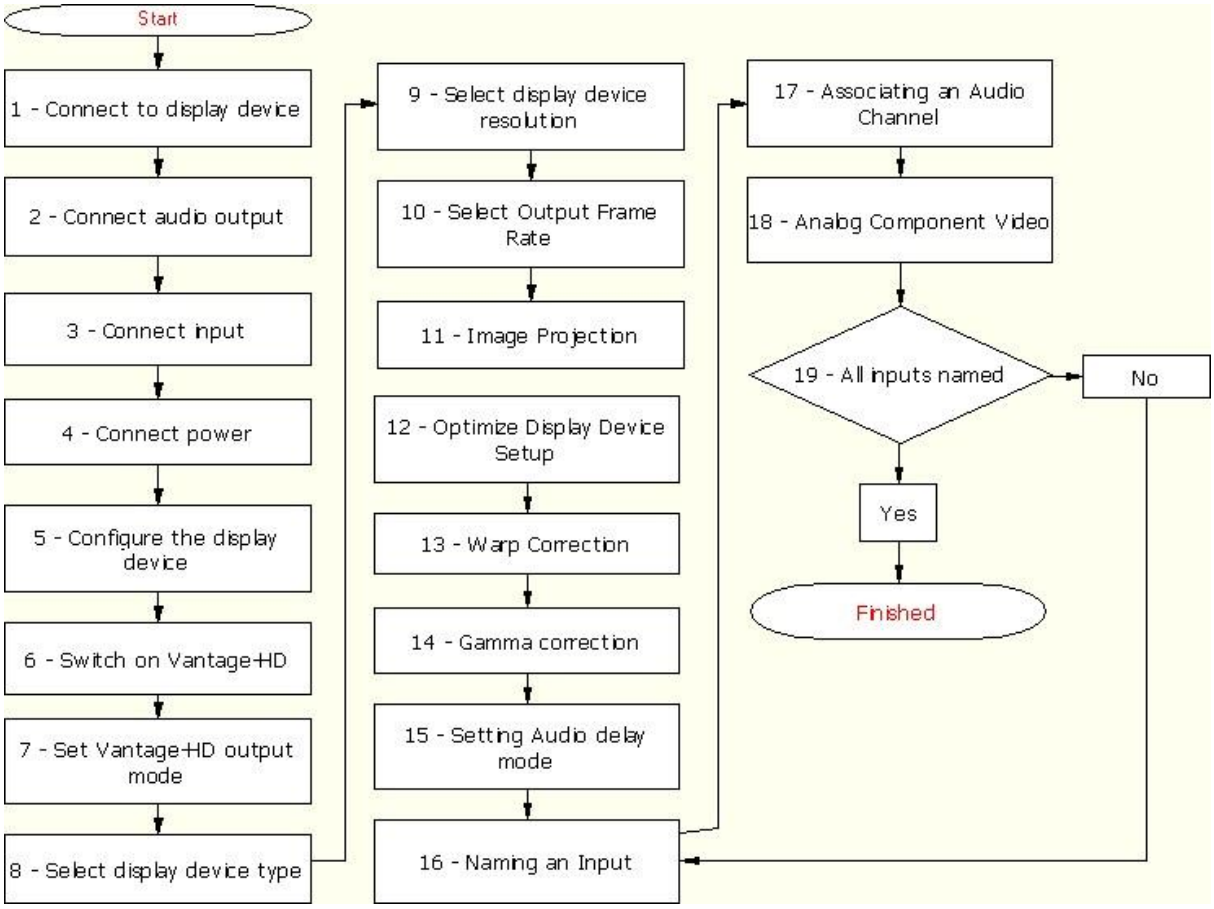
Installation instructions for the expansion modules are supplied with the module. The firmware will automatically detect the modules and they can the be named and configured as per standard Vantage-HD inputs.

Please contact you Vantage-HD retailer for more information regarding expansion modules.

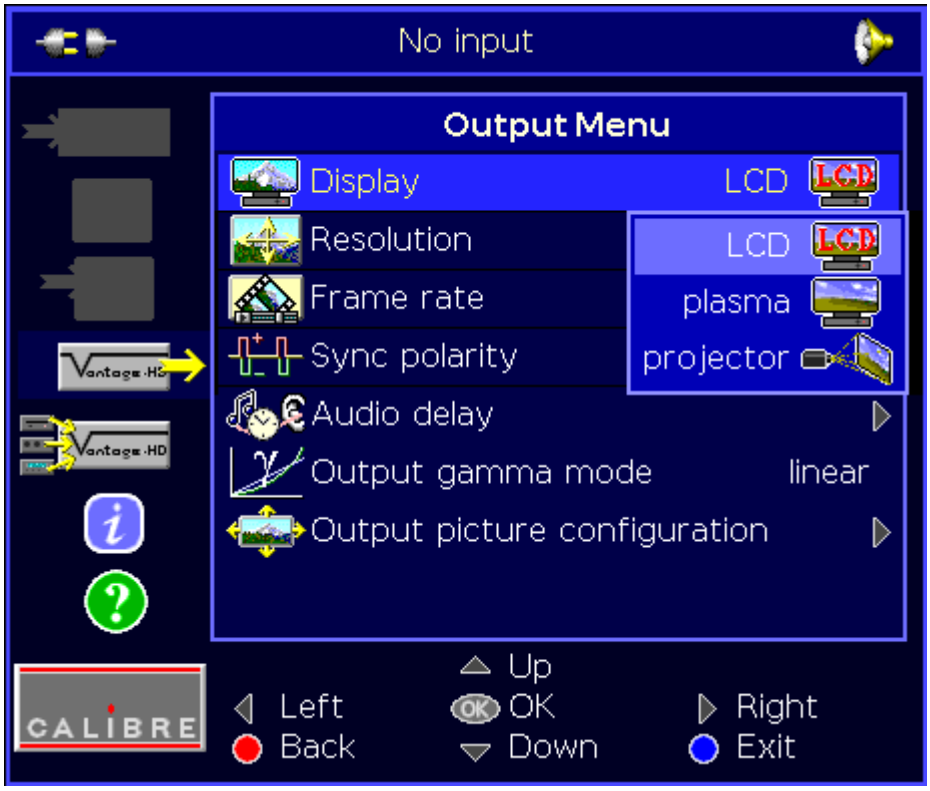
CONNECTING VANTAGE-HD TO THE DISPLAY DEVICE

2.1. Correct Installation Order

The flow chart below details the correct order in which to install your Vantage-HD; following this order will assist with trouble free installation.

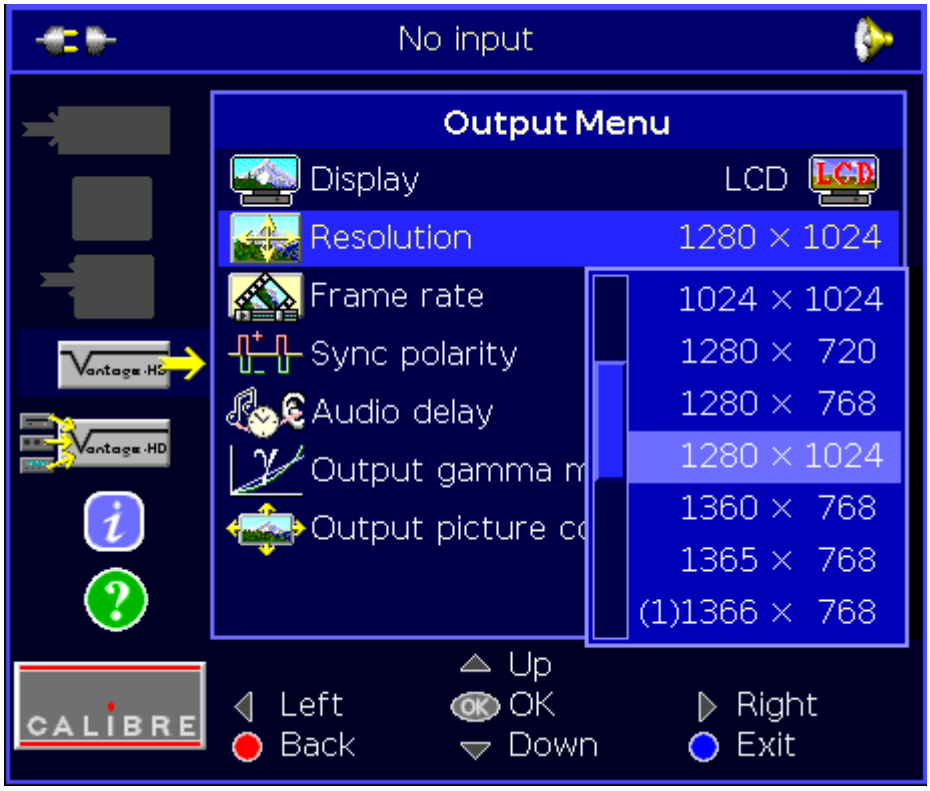

Start
1 - Connect to display device
2 - Connect audio output
3 - Connect input
4 - Connect power
5 - Configure the display device
6 - Switch on Vantage-HD
7 - Set Vantage-HD output mode
8 - Select display device type
9 - Select display device resolution
10 - Select Output Frame Rate
11 - Image Projection
12 - Optimize Display Device Setup
13 - Warp Correction
14 - Gamma correction
15 - Setting Audio delay mode
16 - Naming an Input
17 - Associating an Audio Channel
18 - Analog Component Video
19 - All inputs named
No
Yes
Finished

1.	**Connect to display device**	Connect Vantage-HD SVGA (RGBHV) output or HDMI output to your display device. If connecting a DVI display device you need to use an HDMI to DVI converter which we recommend you locate at the display end of the cable.
2.	**Connect audio output**	Connect Vantage-HD audio Coaxial, Optical or Analog output to audio processor, if HDMI audio output is not being used. **Note**: For best audio performance it is recommended that Coaxial or Optical audio be used, not HDMI audio. Some HDMI sources do not correctly comply with HDMI specifications which can cause audio distortion or loss of audio. If this is experienced, please change to using Coaxial or Optical audio, or consult the supplier of that HDMI source device.
3.	**Connect input**	Connect input video and audio signals to Vantage-HD.
4.	**Connect Power**	Connect power supply provided with Vantage-HD to Vantage-HD power inlet jack. THIS POWER SUPPLY CARRIES A LABEL SHOWING THAT ITS DC OUTPUT IS 5V at 7A or 8A DEPENDING ON THE VARIANT SUPPLIED. DO NOT CONNECT ANY OTHER POWER SUPPLY TO VANTAGE-HD. USE OF ANY OTHER POWER SUPPLY WILL INVALIDATE YOUR PRODUCT WARRANTY Connect the Vantage-HD PSU to your mains outlet and turn on the mains outlet if it is switched
5.	**Configure the display device**	Turn on your display device and select the input channel to which you have connected Vantage-HD
6.	**Switch on Vantage-HD**	Turn on Vantage-HD by pressing the Power (bottom right) button on the front panel, or by pressing the On button on the remote control.
7.	**Set Vantage-HD output mode**	A new Vantage-HD unit will power up in 640x480 @ 60Hz output mode since this should be compatible with all common display devices. If your Vantage-HD has previously been connected it may power up in a different mode. If this mode is not compatible with your display you can easily revert to the 640x480 @ 60Hz output mode by simultaneously pressing the front panel Input key and OK key (OK is the center key of the 5-button navi-key).
8.	**Select display device type**	Press the Menu key to bring up the OSD menu. Scroll to the Output Settings menu using the top/bottom navi-keys. Go into that menu by pressing the right navi-key. First choose your type of display by using the up/down navi-keys to scroll to the Display menu item (if not already highlighted) and pressing OK (the center button of the navi-key). The options which appear are: a) LCD - for direct-view LCD displays b) Plasma - for plasma displays c) Projector - for solid-state (digital) projectors such as DLP, LCD, LCOS, DILA or any other type of digital or analog projector Choosing the appropriate type of display is important since menu items such as temporal noise reduction and how the OSD is generated are pre-set to different default values depending on the display type and different menu items appear or are hidden such as keystone correction.



Picture 1 Select Display Device Type

9	**Select display device resolution**	Choose the correct display resolution by scrolling down to the Resolution menu item and pressing OK to display the list of available modes. Note the scroll bar at the left of the list - it is too long to display the full list on screen so you must scroll up and down it to see all modes. For best performance it is critical that you select a mode which is equal to the native resolution of the display device you are using, provided that the display supports its native mode. This is to ensure that the internal scaling within your display device is not operating. Depending on the mode you choose, Vantage-HD may have to re-boot to change resolution. If this occurs you need to re-enter the Output menu by pressing Menu, scrolling to Output Menu with the up/down keys and entering the Output Menu with the right key. Note: it is possible to program custom output modes. This requires detailed information on the native mode(s) of your display device. Incorrect programming of custom modes can cause damage to some types of display device, do not attempt to program a custom output mode unless you are sure you have the correct information and are confident that you have the necessary video signal knowledge to do this. A customizable sync polarity for the current output mode can be selected via the Output Menu. This allows your Vantage-HD to work with some older plasma panels. If you inadvertently select a frame rate which is incompatible with your display, press and hold the “Menu” and “Enter” (center of navi-key) front panel buttons simultaneously for approximately 3-5 seconds to restore the output mode to 640x480@59.94Hz.



Picture 2 Select Display Device Resolution

10	**Select Output Frame Rate**	Select the Frame Rate option on the menu. This determines whether the output of Vantage-HD remains at a constant 59.94Hz, constant 50Hz, or automatically switches between the two depending on the type of incoming signal being displayed. Auto mode gives best motion performance in a viewing scenario where you are looking at content which may be 59.94Hz or 50Hz (North America and anywhere using the NTSC system usually runs at 59.94Hz, Europe and anywhere using PAL or SECAM usually runs at 50Hz; there are exceptions though in both cases.) However when Auto mode is selected there may be display glitches or display re-sync delays when switching between inputs or when the input signal is lost - this is due to output frame rate changes affecting the operation of your display device. Additionally, some HDMI display devices will not operate correctly in Auto mode due to limitations inherent within those displays. *If you are only using 59.94Hz sources, or only using 50Hz sources, it is strongly recommended you select fixed 59.94Hz or 50Hz respectively so as to improve the input switching characteristics.* Selecting 50Hz output mode with 59.94Hz input material, or vice versa, causes frame rate conversion to occur. This can cause slight degradation in motion performance so is not recommended, but can be used for display devices which are not compatible with the incoming field rate. Note1: 60Hz display devices should correctly display 59.94Hz modes. Note2: Some HDMI sources may potentially lose HDCP authentication if the output frame rate is different from the input frame rate. **Vantage-HD2 models include an additional menu item to allow 24p or 48p output when an incoming 24p signal is detected. 48p is always available for selection. 24p is only available when the output mode is 720p or 1080. Be sure to check carefully that your display device can support 24p or 48p natively, otherwise severe image degradation or total loss of image may occur.** If you inadvertently select a frame rate which is incompatible with your display, press and hold the “Menu” and “Enter” (center of navi-key) front panel buttons simultaneously for approximately 3-5 seconds to restore the output mode to 640x480@59.94Hz.

11	**Image Projection**	Image Projection - allows correction for the orientation and location of the projector relative to the screen. Press OK to show list then scroll up/down list with up/navi-keys, press OK to choose the correct mode. Options are: a) Front Table - projector is in front of screen and correct way up b) Front Ceiling - projector is in front of screen but upside down c) Rear Table - projector is behind screen but right way up d) Rear Ceiling - projector is behind screen and upside down
12	**Optimize Display Device Setup**	When connecting your display via the SVGA (RGBHV) connector it is imperative that the pixel clock and phase settings are correctly adjusted on the menu system of your display device. For information on how to access these features see the user manual supplied with your display device. *Note: You must set Vantage-HD to the native resolution* of *your display device BEFORE adjusting the pixel clock and phase settings on your display.* To set the pixel clock, with no input displayed on Vantage-HD but with the OSD present and the blue background shown, adjust the pixel clock setting (on your display device, not on Vantage-HD) to remove all vertical noise bands from the blue background. Correct adjustment will cause the vertical bands to move further apart and reduce in number until they eventually disappear. Many good displays will automatically select the correct pixel clock setting, but some will not. IMPORTANT: See Chapter 10 - Output Mode Details for detailed information on output mode timings including information on the correct pixel clock setting - the total number of pixel clocks per line. See also Note (b) below when using 1366x768/1360x768 modes. To set the pixel phase, first set the pixel clock correctly (see above) and then adjust the pixel phase to remove all horizontal jitter and noise from the background and the OSD, in particular you should adjust for best sharpness of the OSD text and graphics. PIXEL CLOCK AND PHASE ADJUSTMENTS WITHIN THE DISPLAY DEVICE ARE NOT APPLICABLE WHEN USING A DVI OR HDMI DISPLAY DEVICE.
		Notes: a) Some 1024x1024 plasmas do not correctly support 1024x1024 native resolution, in this case you must unfortunately select 1024x768 or 1280x768, experiment to see which gives best performance. b) There are two 1366x768 modes and a 1360x768 mode provided. This is because some types of plasma and LCD with this resolution need different signal timings compared with those which are considered standard for this format. As a general rule, 1366x768 modes will give better performance than 1360x768 but some displays do not support 1366x768 modes. The key difference between the two 1366x768 modes is the length of line blanking. Pick the 1366x768 mode which allows you to correctly set the pixel clock on your display device and which does not cause bad clamping. (If the picture appears very dark or very bright then it is incorrectly clamped due to the selected mode not being compatible with your display - try the other 1366x768 mode or the 1360x768 mode instead). c) There is also a 1368x768GTF mode supported. This is the CEA-recognised implementation of 1366x768 - it actually provides an active image size of 1366, not 1368. This is the recommended mode for use with modern HDMI/DVI compliant 1366x768 displays. d) 852x480 mode may need to be used for plasma screens with resolutions of 852 or 853 pixels. Many 853 pixel plasma displays do not actually support incoming modes with an odd number of input pixels.

		e) Never pick a mode with more display lines than the native format of your display device, selecting a higher resolution mode will not increase the system performance, it will instead degrade the picture significantly since it will cause the internal scaler within your display to downsize the picture resulting in loss of detail and artifacts.
		Depending on the frame rate mode you choose, Vantage-HD may have to re-boot to change resolution. If this occurs you need to re-enter the Output menu by pressing Menu, scrolling to Output Menu with the up/down keys and entering the Output Menu with the right key.
13	**Warp Correction & Image Positioning**	Warp Correction - only applicable if the chosen display type is Projector. This allows for correction of vertical and horizontal keystone errors caused by misalignment of the projector to the screen. Correction up to +/- 30 degrees vertically and +/-40 degrees horizontally are possible, within the constraints of the chosen native resolution which is dependent on the display device - a higher resolution display device will give better results at more extreme angles of adjustment. Select the Warp Correction menu item using the OK key, then choose which corner to manipulate, then use the up/down and left/right navi-keys to manipulate the image by changing the angle of adjustment in the vertical and horizontal planes respectively. The X and Y coordinates of the corner being moved is displayed. Note: Although Vantage-HD's Warp Correction allows for extreme off-angle picture geometry correction and maintains display resolution to the very best possible level even in such situations, Vantage-HD cannot correct for mis-focussing of the projector lens. Depending on the physical and optical characteristics of the optics within your projector, focus errors may occur at extreme projection angles which may cause one side of the image to appear less sharp than the other. After setting warp on Vantage-HD you should adjust the focus of your projector lens to obtain best overall picture sharpness, paying particular attention to sharpness in the center of your screen for viewing movies and TV. Image positioning - this allows fine-tuning of the output image position on the chosen display device. Use this function to move the output image left/right or up./down and to alter the size of the image. Note that this function specifically controls the output image position, not the input image capture area. Custom Mode allows the output timing to be defined, once this has been done the Custom Mode can be selected from the Output Resolution list.
14	**Gamma Correction**	Scroll to Output Gamma Mode and choose the gamma mode you require. This should be left set to Linear unless you also choose the correct input gamma for every input signal you connect. It is used to map an incoming gamma curve to a different outgoing gamma curve. It is possible to set up a custom gamma response to suit your display device.
15	**Setting Audio Delay Mode**	Audio Delay - the audio delay through Vantage-HD is automatically set to compensate for the delay through Vantage-HD which is typically 5-7 fields. The Audio Delay option on the Output Menu does not override this automatic setting but allows fine calibration of the audio delay in steps of approximately 1 mS, to advance or retard the audio so as to compensate for further delays in your display device or your audio system. If you notice lipsync errors when viewing program material, you can use this option to reduce or remove that error. Fine tuning of the audio delay can only be set correctly when viewing real program material so should not be adjusted at this stage.

Output configuration is now complete, apart from fine-tuning the audio delay, which may require adjustment later, depending on your display device and audio system. Exit the Output Menu by pressing the left navi-key.

CONNECTING VANTAGE-HD INPUTS

3.1. Introduction

It is now necessary to define which input channels are connected and to pair the correct audio channel with each video channel. To begin to do this, scroll down to the Input Connections menu and enter that menu by pressing the right navi-key.

By default, no video channels and no audio channels are active. You must define which channels are connected on the Input Connections menu and choose whether or not each video channel has an associated audio channel. Only those video channels which are physically present on your Vantage-HD are shown, those which are grayed-out require an additional expansion module.

NOTE If your input device allows you to select an output resolution please select the native resolution of the image to be displayed.

16. Naming an Input	To enable or disable a video channel, scroll to that channel type with the up/ down navi-keys, then press OK. You must then give that channel a name which means something to you or your installation/system for future reference. Do this by using the up/down navi-keys to scroll through the available characters and numbers (fast-scroll through the list automatically activates after approx 2 seconds). Then use the left/right navi-keys to move to the next character in the name, or go back to alter a character you have already chosen. (Note: To delete a character and not replace it with another, scroll with the up/down navi-keys to select the blank/space character.) It is not possible to enable a video channel or associate a sound channel with it until you have named that channel. Press the OK button when you have finished naming that input, the channel will now automatically be enabled as an available input.
Input Number (optional configuration)	To enable direct-selection of an input channel, using the numeric keys on the remote control, scroll to the Input Number with the up/down navi-keys, then press OK. Select the desired number from the list the press OK. Numeric selection is not essential for the operation of Vantage-HD but does provide a quick method of getting to the desired input.
17. Associating an Audio Channel	After naming the input channel, scroll down to the Sound Source menu item to choose the associated sound channel and press OK to view the list of available sound channels. If there is no associated sound channel (e.g. for a PC input with no audio) choose None. Only those sound channels which have not already been allocated to another video input channel are available for selection; those which have already been allocated are grayed-out. Note the scroll bar at the left of the list - there are too many audio channels to display all at once, you must scroll up and down the list to see all the available channel options. Note: HDMI audio inputs can only be associated with the matching HDMI video input. For best audio performance we recommend using Coax or Optical SPDIF audio where supported by the source.

18. For Analog Component Video Only	For analog Component Video inputs only, you can also choose whether the input source provides YPbPr, YPbPrS, RGB or RGBS video. It is important to select the correct color and sync format, otherwise the picture coloration will be wrong or no picture may be displayed. Most North American DVD players and set-top boxes output YPbPr. Most European (SCART) devices output RGBS It is also possible to choose between 0.7v and 1.0v video levels on the component inputs. Most sources provide 0.7v video, plus 0.3v sync, but some do provide 1.0v (excluding syncs). This can overload the input ADCs in Vantage-HD causing very noticeable picture quality degradation in bright picture areas due to peak-level compression. If the 0.7v setting causes compression, change to 1.0v. Note that incorrectly selecting 1.0v when the source is providing 0.7v will lead to a very dark image.

Definition of that video input channel is now complete.

You should now repeat steps 16 to 18 to the define all the remaining video and audio channels you wish to use. When you have finished defining input channels, exit the Input Connections menu using the left navi-key to move back to the main menu on the left of the OSD

3.2. Resetting An Input Channel

Reset Channel	This very useful function resets all the input parameters to the default settings for that input channel with the current selected display device type. This enables you to recover to known settings.

Input Setup Menu

FREEING INPUT CHANNELS

4.1. Freeing a Video Channel

Should you wish to disable a video input, you may do so by re-selecting that video channel from the Input Connections menu, selecting the Disable Channel function and then selecting Yes from the warning message which appears. Disabling a video input channel not only removes it from the input selections list, it also erases its name and de-allocates its associated audio channel.

Note: If all possible input channels are disabled, the OSD will exit at the point at which the last channel is disabled. This is because there are now no valid inputs so Vantage-HD has switched to its unconfigured (default) mode of operation. In this default mode the input channel to be displayed is undefined so may vary randomly. To start re-defining the input channels, press the Menu button again and use the navi-keys to re-enter the Input Connections menu.

4.2. Freeing an Audio Channel

Should you need to free up a previously allocated channel, go to that video input channel and select a different audio channel or no audio channel for association with that video input channel.

Press OK when you have chosen the correct audio channel.

Note: HDMI inputs by default associate themselves with the HDMI audio on that HDMI video channel. You can change this to any available digital or analog audio input if you wish, but cannot cross-select audio from a different HDMI video channel, e.g. HDMI2 can use audio from HDMI2 or from any analog or digital audio input, but HDMI2 video cannot be associated with audio from HDMI1 input. Calibre recommends use of Coaxial or Optical digital audio where the source device allows.

SELECTING AN INPUT

5.1. Via the OSD

Now you can choose from the input channels you have defined by scrolling up to the Input Selection menu. Here you will find listed those input channels you have defined. Press the right navi-key to enter the Input Selection menu, then scroll to the input you wish to view or whose configuration you wish to alter. Press OK to select it.

5.2. Via the Front Panel

Alternatively you can step through the defined input channels when the OSD is not displayed by using the Input key on the front panel of Vantage-HD.

5.3. Via the Numeric Buttons on the Remote

You can also direct-select an input channel by its number in the Input Selection listing, using the numeric keys on the remote control.

It is also possible to change the allocated numbers for those input channels in the Input Selection list. To do this scroll to that channel type with the up/down navi-keys, then press OK. Scroll to the Input Number, then press OK. Select an alternative number from the list.

Note the order of the list does not change on the OSD.

Input Selection Menu

ADJUSTING AN INPUT

6.1. Introduction

When an input channel has been selected, an input type dependent Picture Controls menu can be accessed. Note that for this menu to be fully accessible, a valid video input signal MUST be connected to the chosen video input channel. All settings on the Picture Controls menu are stored separately for each input channel and so do not affect the other inputs. Note: Default settings for many items are dependent on the type of input channel and the type of display device chosen.

To adjust the picture settings, scroll to the Picture Controls menu then press the right navi. key to enter that menu.

MANY SETTINGS ARE SIGNAL-TYPE DEPENDENT. NOT ALL ADJUSTMENTS ARE PRESENT FOR EVERY INPUT SIGNAL TYPE, THE LIST BELOW SHOWS ALL POSSIBLE OPTIONS BUT THESE ARE NEVER ALL AVAILABLE SIMULTANEOUSLY SINCE SOME ARE EXCLUSIVE TO ONE INPUT TYPE, SOME ARE EXCLUSIVE TO ANOTHER INPUT TYPE. BE SURE TO HAVE THE CORRECT INPUT SOURCE CONNECTED AND RUNNING, OTHERWISE THE CONTROLS MAY NOT HAVE THE DESIRED EFFECT WHEN THE ACTUAL SIGNAL IS CONNECTED.

Brightness	Control of background level
Contrast	Control of video gain
Enhancement	Sharpness - Control of the sharpening enhancement filters' levels. These are peaking filters to improve high-frequency response. Note that setting this control too high on a signal which already has good high frequency response will cause ringing or ghosting. Detail Enhance - This is a very powerful function which performs a per-pixel unsharp mask on the image content. It can be used to greatly improve detail definition and clarity without causing image ringing or ghosting. It improves both horizontal and vertical detail. Correct setting of the detail enhance filter can make SD signals look nearly as good as true HD. Note: The enhancement settings apply to video input signals only, not computer graphics signals.
Color	Saturation and Hue controls on a sub menu (video input signals only)
Pixel Clock & Phase	A submenu allowing adjustment of the pixel clock (total number of pixel clocks per line) and the pixel phase for the SVGA (RGBHV) input only. This menu item only appears with the SVGA input selected.
Auto Setup	Automatically adjusts the pixel clock and phase settings for the SVGA input. This menu item only appears with the SVGA input selected.
Picture Format	Select from Normal, full Screen, Crop, Anamorphic or Flex Wide. A 2.35 Mode is available if Projector Mode is selected.
Aspect Ratio Adjust	A user-definable custom aspect ratio function is also available

Picture Controls Menu

Video Filters **(Video input signals only)**		A submenu containing selection options for many image enhancement filters including
	CCS	Cross Chrominance Suppression filter (reduction of chroma-crawl)
	CUE	Chroma Upsampling Error correction filter
	ICP	Interlace Chroma Problem filter - Reduces chroma interlace errors on diagonals and curves
	TNR	Temporal Noise Reduction (removes "electronic" noise found on broadcasts, film material and particularly noticeable on plasma screens; set to High to significantly improve signal to noise ratio on plasmas)
	MPEG	Selects whether MPEG spider and block noise is on or off and adjusts the level of MPEG noise reduction for SD signals. Not applicable to HD formats – use TNR for removal of all types of noise from HD formats.

Video Filters Menu

Picture Settings	A submenu of picture control functions including
	Contrast Enhance Preconfigured contrast enhancements which can be selected to suit your personal requirements and the material being viewed. **Color temperature** To select the color temperature of the incoming material. Options are Warm, Neutral, Cold. With a 7200K display device (a typical projector or LCD set to neutral) these correspond to nominal settings of 6500K, 7200K & 9300K respectively. For neutral color temperature response, that is, to leave the response of the program material unmodified, select Neutral, this is the default setting. There is also a user-defined color temperature setting whereby individual R,G,B levels can be set so as to accurate calibrate a particular input/source to the display device. **Input gamma mode** Used to re-map an input gamma to a different output gamma setting. Only use this function if the output gamma has also been chosen on the Output Settings menu, otherwise leave set to Linear **Black Level** Use to select or de-select 7.5IRE black level set-up adjustment. Should always be on for HDMI video inputs and should usually be off for analog video inputs. **Input Capture** Select the amount of overscan. **Input Window Shift** Allows horizontal and vertical adjustment (pan and tilt) of the captured active image area within the overall display resolution. Note: The range of position adjustment available is limited by the characteristics of the signal timings from the image source equipment: in some circumstances adjustment may not be possible, particularly with HDMI/DVI signals. Changes in output image position (to correct for projector alignment errors or image positioning errors on the display device) should be effected via the Warp corner-adjustment menu or the image position controls on the output menu..

Picture Settings Menu

PICTURE IN PICTURE

7.1. Introduction

To enable PIP mode, scroll down the main menu to the Picture-in-Picture Settings menu and press the right navi-key to enter that menu. To enable PIP, scroll to the PIP Enable option and press the OK key. Note: You cannot use the PIP menu successfully without at least two active inputs connected to Vantage-HD.

Selecting the input	Use the PIP Inputs menu to select which picture is displayed in the PIP window
Swapping PIP	Use the PIP Swap function to swap the primary image with the PIP image
Positioning the PIP	Use the PIP Position functions select the position and size of the PIP.
OSD not visible	When the PIP is displayed and the OSD menu is not on screen the navi-key arrows can be used to move the PIP around the screen and re-size the PIP window
Limitations	PIP Limitations - due to the high demands on the processing power available within the Realta HQV chip when an HD main image is displayed, full Video Processing is not always available when PIP is in use. If the main image is 1080i or 1080p and the PIP image is 720p, 1080i or 1080p the maximum available image processing bandwidth may be exceeded. In such circumstances Video Processing is automatically disabled resulting in reduced image quality. Full image processing performance and quality is automatically restored when the PIP is closed. If the main image or the PIP image is SD then full Video Processing is maintained even with a PIP showing. Note also that the main image and the PIP image must be from different input groups, since each group shares a common video bus within the hardware. Input Groups are: Group 1: HDMI1, HDMI2 Group 2: Component1, Component2, SVGA, Expansion Port Group 3: Video1, Video2, S-Video1, S-Video2

Picture In Picture Menu

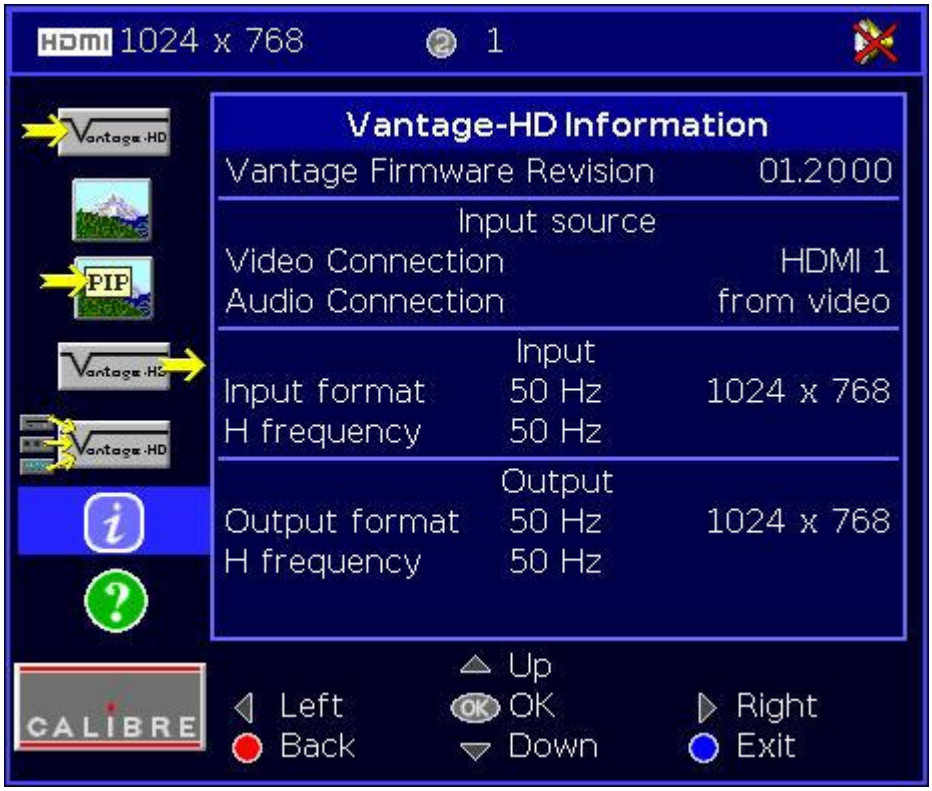
INFORMATION MENU

8.1. Introduction

The Information Menu provides information about the version and status of your Vantage-HD. Information shown is

Vantage-HD Information	**Vantage revision** The version number of the control software and user menu/user controls functionality in your Vantage-HD.
Input Source	Displays details of the video and audio connection channel presently selected
Input Format	Displays approximate details of the detected input video signal including vertical frequency (refresh rate), horizontal frequency (line rate) and resolution. Note that if the input is interlaced, the de-interlaced resolution is shown
Output Format	Displays approximate details of the output video signal including vertical frequency (refresh rate), horizontal frequency (line rate) and resolution

Important Note: The input and output format measurements are approximate only and do not show the exact precise refresh and line rate; they are subject to tolerances due to the measurement method and calculation rounding. Do not be alarmed if the input rate or output rate is not exactly what you think it ought to be.



Information Menu

CONFIGURATION MENU

9.1. Introduction

The Configuration Menu allows the user to customize the "look and feel" of the Vantage-HD user interface

Language	Allows selection of the language for the OSD; current options are English (American) - default English (British) – proper English! Francais Deutsch
Menu Colors	Allows selection of the color scheme for the OSD, options are Blue - default Gray Green
Transparent Menu	Allows the displayed image to be viewed through the OSD menu by making the OSD semi-transparent. Default is off
3-D Effect	Changes the menu borders between flat (default) and 3-D effect
HDMI Input Configuration	Allows the HDMI audio operation mode to be changed between Repeater and Receiver. It is possible to select the audio channel format which is requested from the source and it is also possible to change the native video mode requested from the source. (Note: Not all HDMI sources will obey these requests, this depends on whether they act on the information contained within the EDID and whether they are able to provide the requested audio/video formats.) When configured as a Repeater, the HDMI capabilities of your attached display device are relayed through Vantage-HD to your HDMI source equipment. When configured as a Receiver, the HDMI capabilities seen by your source equipment are fixed by Vantage-HD and do not relate directly to the capabilities of your attached display device. If using audio from the HDMI output of Vantage-HD together with HDMI audio from your source equipment, you should always select Repeater, otherwise the audio signal presented to your display device may not be compatible with it. If using HDMI audio inputs to Vantage-HD from your source equipment, but using the Coaxial or Optical audio outputs from Vantage-HD, you should always select Receiver, otherwise multi-channel audio may not be available from the Coaxial or Optical audio outputs. If you find that the HDMI behavior of your source or display equipment is erratic or not as expected, try changing the HDMI mode since some display devices and some source equipment do not correctly support Repeater mode. Cont:

	IMPORTANT: i) Before changing from Receiver to Repeater mode, make sure your display device is connected and turned on. ii) Before changing from Receiver to Repeater, or from Repeater to Receiver, we recommend that you physically disconnect from Vantage-HD any connected HDMI source equipment. iii) Vantage-HD has to be able to re-program its internal HDMI EDID eeproms during a firmware update via USB, or during a change of HDMI receiver/repeater mode selected via the System menu. Some HDMI sources prevent this occurring since they fail to correctly monitor the HDMI hotplug line. This can lead to the HDMI EDID eeprom becoming corrupted with subsequent loss of HDMI input audio, or total loss of HDMI input capability. To avoid this, it is strongly recommended that there are no HDMI devices connected to any HDMI input on Vantage-HD when performing a firmware update via USB, or when changing the HDMI receiver/repeater mode via the System menu. After changing the HDMI receiver/repeater mode, do not power down Vantage-HD and do not re-connect any HDMI sources for at least 1 minute. Should this not have been observed, the HDMI EDID eeproms' data can be repaired by disconnecting all HDMI sources, then changing the HDMI receiver/repeater mode first one way, then the other, via the System menu, with a pause of approximately 1 minute between each change. Note: Use of analog audio outputs with HDMI audio inputs is not recommended since in many instances analog audio out will be automatically disabled due to HDCP and HDMI licensing requirements. Also, analog audio will not function if the HDMI audio input source is multi-channel rather than 2-channel.
0SD Timeout	The time between the last keypress and the OSD being automatically removed. Note: The default setting of 0 means no timeout, the OSD remains until it is removed by pressing a the Menu key.
Infoscreen Timeout	The time between pressing the info key (or a channel change) and the infoscreen being automatically removed. The default setting of 0 means no timeout, the OSD remains until it is removed by pressing a the Menu key. It is NOT RECOMMENDED to use a setting of 0 for the infoscreen timout. Setting a value of -5 will result in the infoscreen not being automatically displayed which is useful if a HD/SD multi-format source is connected which regularly changes resolution.
Factory Reset	This performs a global reset of all parameters within Vantage-HD, all settings are returned to their factory default settings. This function should only be used as a last resort; you will lose absolutely all your previous configuration settings.

OUTPUT MODE DETAILS

10.1. Introduction

The following output modes are supported by Vantage-HD

Resolution	H Freq	V Freq	H act	H Tot	HS	HBP	V act	V Tot	VS	VBP
640×480	31.469	59.94	640	800	96	48	480	525	2	33
640×480	26.25	50	640	800	96	48	480	629	2	85
800×600	37.642	59.94	800	1056	128	88	600	628	4	23
800×600	31.4	50	800	1056	128	88	600	628	4	23
852×480	26.25	50	852	1044	24	48	480	525	4	30
852×480	31.469	59.94	852	1044	24	48	480	525	4	30
853×480	26.25	50	853	1044	24	48	480	525	4	30
853×480	31.469	59.94	853	1044	24	48	480	525	4	30
1024×768	48.312	59.94	1024	1344	136	160	768	806	6	29
1024×768	39.65	50	1024	1312	104	144	768	793	4	18
1024x1024	52.8	50	1024	1408	160	203	1024	1056	3	26
1024x1024	63.297	59.94	1024	1408	160	203	1024	1056	3	26
1280×720	44.955	59.94	1280	1650	40	220	720	750	5	20
1280×720	37.5	50	1280	1980	40	220	720	750	5	20
1280×768	47.83	59.94	1280	1664	128	192	768	798	7	20
1280×768	39.9	50	1280	1664	128	192	768	798	7	20
1280×1024	63.896	59.94	1280	1688	112	248	1024	1066	3	38
1280×1024	53.3	50	1280	1688	112	248	1024	1066	3	38
1360×768	39.75	50	1360	1792	100	300	768	795	3	20
1360×768	47.652	59.94	1360	1792	100	300	768	795	3	20
1365×768	39.4	50	1365	1526	50	62	768	788	4	12
1365×768	47.28	59.94	1365	1526	50	62	768	788	4	12
1366x768-1	38.75	50	1366	1450	30	50	768	775	3	3
1366x768-1	46.454	59.94	1366	1450	30	50	768	775	3	3
1366x768-2	39.75	50	1366	1792	100	300	768	795	3	20
1366x768-2	47.652	59.94	1366	1792	100	300	768	795	3	20
1368×768	39.75	50	1368	1800	144	216	768	795	3	23
1368×768	47.7	59.94	1368	1800	144	216	768	795	3	23
1366x1024	68.299	50	1366	1840	120	300	1024	1366	3	48
1366x1024	81.878	59.94	1366	1840	120	300	1024	1366	3	48

Resolution	H Freq	V Freq	H act	H Tot	HS	HBP	V act	V Tot	VS	VBP
1400×1050	53.3	50	1400	1688	112	128	1050	1066	3	12
1400×1050	63.896	59.94	1400	1688	112	128	1050	1066	3	12
1920×1080	56.25	50	1920	2640	44	148	1080	1125	5	36
1920×1080	67.433	59.94	1920	2200	44	148	1080	1125	5	36
1400x788	40.75	50	1400	1850	100	300	788	815	3	18
1400x788	48.851	59.94	1400	1850	100	300	788	815	3	18
1920x1200	61.75	50	1920	2080	32	80	1200	1235	6	26
1920x1200	74.026	59.94	1920	2080	32	80	1200	1235	6	26
2048x1080	54.55	50	2048	2208	32	80	1080	1091	5	3
2048x1080	65.39	59.94	2048	2208	32	80	1080	1091	5	3

Notes:

a) Some 1024x1024 plasmas do not correctly support 1024x1024 native resolution. In this case you must unfortunately select 1024x768 or 1280x768, experiment to see which gives best performance.

b) There are two 1366x768 modes and a 1360x768 mode provided. This is because some types of plasma and LCD with this resolution need different signal timings compared with those which are considered standard for this format. As a general rule, 1366x768 modes will give better performance than 1360x768 but some displays do not support 1366x768 modes. The key difference between the two 1366x768 modes is the length of line blanking. Pick the 1366x768 mode which allows you to correctly set the pixel clock on your display device and which does not cause bad clamping. (If the picture appears very dark or very bright then it is incorrectly clamped due to the selected mode not being compatible with your display - try the other 1366x768 mode or the 1360x768 mode instead).

c) 852x480 mode may need to be used for plasma screens with resolutions of 852 or 853 pixels. Many 853 pixel plasma displays do not actually support incoming modes with an odd number of input pixels.

e) Never pick a mode with more display lines than the native format of your display device; selecting a higher resolution mode will not increase the system performance, it will instead degrade the picture significantly since it will cause the internal scaler within your display to downsize the picture resulting in loss of detail and artifacts

10.2. Audio Output Formats

One analog stereo pair via RCA jack connectors, output format 1V pk-pk nominal 1K output impedance

1 S/PDIF coaxial with up to 8 audio channels

1 S/PDIF optical with up to 8 audio channels

NOTE Vantage-HD does not downmix audio inputs, so if 5.1 or 7.1 audio is input, the 2 channel analog audio outputs may not produce acceptable sound quality. Use of analog audio outputs with HDMI audio inputs is not recommended since in many instances analog audio out will be automatically disabled due to HDCP and HDMI licensing requirements.

INPUT SIGNAL DETAILS

11.1. Introduction

This section provides technical details for all possible inputs. Please refer to the model specification to determine which inputs can be displayed by your Vantage-HD.

11.2. Video Inputs

Composite via RCA jacks

S-Video via 4-way mini DIN socket

Signal formats	Composite (CVBS), S-Video (Y/C), Standards NTSC, PAL, SECAM
Composite (CVBS) input level	1V p-p nominal inc. sync
Luminance (Y) input level	1V p-p nominal inc. sync
Chrominance (C) input level	0.6V p-p nominal
Input Impedance (all inputs)	75 Ohms

11.3. Component Video Input

Via 3 or 5 RCA jacks

YPbPr, YPbPrS, RGB and RGB(S) component video

Signal formats 484i and 576i (SD), 480p, 576p (ED), 720p, 1080i at 50, 59.94 and 60Hz and 1080p at 24, 25, 29.97 and 30Hz.

Please note this input does not support Computer SVGA signals which should be connected via the Computer SVGA input

11.4. SDI Input (optional)

Format: SD-SDI and HD-SDI YCbCr 4:2:2 serial digital component video
Input impedance: 75 ohms.

SMPTE 292M and SMPTE 259M-C compliant

11.5. HDMI / DVI Input

HDMI format 1.1 with HDCP (version 1.3 supported via the optional plug in card).

Vantage-HD is tolerance of non-standard HDCP and HDMI implementations in third-party equipment and is able to work with any mix of HDCP and non-HDCP input signals on both input channels as well as signals which changed back and forth from non-HDCP to HDCP.

Vantage-HD supports DTS audio via the HDMI connector.

Signal formats include (almost) all output modes (if the mode is not in the list, it will try to use the nearest), specifically: (references to 60Hz below mostly means 59.94Hz)

NTSC (interlaced and progressive, at 60Hz);
PAL (interlaced and progressive, at 50Hz);
720p at 50, 60Hz;
1080i at 24, 50 and 60Hz;
1080p at 24, 25, 30, 50 and 60Hz;
720x400p at 70Hz
640x480p at 60, 75Hz;
800x600p at 60, 75Hz;
852x480p at 60Hz;
853x480p at 60Hz;
1024x768p at 60, 75Hz;

1280x768p at 60Hz;
1280x1024p at 60, 75Hz;
1360x768p at 60Hz;
1365x768p at 60Hz;
1366x768p at 60Hz;
1366x1024p at 60Hz;
1368x768p at 60Hz;
1400x788p at 60Hz;
1400x1050p at 60Hz;
1600x1200p at 60Hz;
1920x1200p at 60Hz;
2048x1080p at 50, 60Hz;

11.6. Computer (SVGA) Inputs

Signal formats:	DOS	720 x 400	70Hz
	VGA	640 x 480	60Hz to 75Hz inclusive
	SVGA	800 x 600	56Hz to 75Hz inclusive
	XGA	1024 x 768	60Hz to 75Hz inclusive
	WXGA	1280 x 768	60Hz to 75Hz inclusive
	SXGA	1280 x 1024	60Hz
		1080p	60Hz

RGB video level	0.7V - 1.0V
RGB input impedance	75 Ohms
Sync format	Separate H & V sync at TTL levels.

11.7. Audio Input Formats

Four analog stereo pairs via RCA jack connectors, nominal 1V pk-pk 10K input impedance

2 S/PDIF coaxial with up to 8 audio channels

2 S/PDIF optical with up to 8 audio channels

POWER SUPPLY SPECIFICATION

12.1. Introduction

Should the mains power supply become damaged or fail please contact your Vantage-HD distributor for a replacement.

Any replacement power supply should meet or exceed the following specifications

Input voltage	100V to 240V; AC 50Hz to 60Hz; 1.5A.
AC Inlet	Desktop Type with 3-pin power cord. A grounded power outlet MUST BE USED for continued product safety.
Output voltage	5V DC at 6-7A
Output connector	2.1 x 5.5 x 12mm female barrel +ve centre polarity.
Operating temperature	0°C ~ 40°C
Storage temperature	-40°C ~ 85°C
Protection Mode	Short Circuit Protection, Over Voltage Protection, Over Load Protection
Approvals	FCC Class B, CE, UL, cULs

REGULATORY APPROVALS

13.1. CE and FCC Compliance

CE: This product complies with the requirements of 89/336/EEC Electromagnetic Compatibility Directive amended by 92/31/EEC and 93/68/EEC, and 73/23/EEC Low Voltage Directive. Compliance is to EN55022 Class B (domestic/commercial use).

FCC: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment. It is required that the user use only shielded and grounded signal cables to ensure compliance with FCC rules.

ENVIRONMENTAL AND SAFETY

14.1.	Operating	
	Temperature	0°C to 40°C (32°F to 104°F)
	Humidity (non condensing)	0% to 95%
14.2.	Storage	
	Temperature	-25°C to 85°C (-13°F to 185°F)
	Humidity (non condensing)	0% to 95%

14.3. Safety Issues

SAFETY WARNING:

1. THERE ARE NO USER SERVICEABLE PARTS WITHIN THE UNIT, THE REMOTE CONTROL OR THE MAINS POWER SUPPLY. DO NOT REMOVE THE POWER SUPPLY COVER - DANGEROUS VOLTAGES WILL BE EXPOSED. DO NOT OPERATE VANTAGE-HD WITH ITS COVER REMOVED.
2. ENSURE THAT ALL ELECTRICAL CONNECTIONS (INCLUDING THE POWER CORD AND ANY EXTENSION LEADS) ARE PROPERLY MADE AND COMPLY WITH ELECTRICAL SAFETY REGULATIONS APPLICABLE TO YOUR LOCATON.
3. ENSURE THAT THE INTEGRITY OF THE EQUIPMENT ISOLATION BARRIER IS MAINTAINED WHEN CONNECTING TO OTHER EQUIPMENT. THIS MEANS THAT ONLY LOW VOLTAGE ISOLATED CIRCUITS MAY BE CONNECTED TO THE SIGNAL INPUTS AND OUTPUTS. IF ANY DOUBT EXISTS CONSULT QUALIFIED SERVICE PERSONNEL.
4. TO PREVENT SHOCK OR FIRE HAZARD DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. IF SUCH EXPOSURE OCCURS, REMOVE THE PLUG FROM THE MAINS OUTLET AND HAVE THE EXPOSED UNIT CHECKED BY QUALIFIED SERVICE PERSONNEL.
5. VANTAGE-HD IS DESIGNED FOR NORMAL DOMESTIC USE IN A DRY ENVIRONMENT. DO NOT USE OUTSIDE, OR IN AREAS OF HIGH HUMIDITY SUCH AS IN THE VICINITY OF KITCHEN APPLIANCES, IN THE BATHROOM OR SHOWER ROOM, SAUNA, STEAM ROOM, SWIMMING POOL OR ANY OTHER DAMP ENVIRONMENT. USE IN A DAMP ENVIRONMENT MAY CAUSE DAMAGE TO VANTAGE-HD AND IS DANGEROUS.
6. DO NOT CONTINUE TO OPERATE THE EQUIPMENT IF YOU HAVE ANY DOUBT ABOUT IT WORKING NORMALLY, OR IF IT IS DAMAGED IN ANY WAY. WITHDRAW THE MAINS PLUG FROM THE MAINS OUTLET AND CONSULT QUALIFIED SERVICE PERSONNEL.
7. DO NOT REMOVE ANY FIXED COVERS UNLESS YOU ARE QUALIFIED TO DO SO AND EVEN THEN WITHDRAW THE MAINS PLUG FROM THE MAINS OUTLET BEFORE YOU START.
8. THE COVER OF VANTAGE-HD SHOULD ONLY BE REMOVED FOR INSTALLATION OF UPGRADE BOARDS AND EVEN THEN ONLY ONCE DISCONNECTED FROM THE POWER SUPPLY AND ALL ASSOCIATED EQUIPMENT. DO NOT ATTEMPT TO INSTALL AN UPGRADE BOARD UNLESS YOU ARE CONFIDENT OF YOUR ABILITY TO DO SO AND YOU ARE WEARING A GROUNDED ANTI-STATIC WRISTBAND. DAMAGE CAUSED DURING UPGRADES OR WITH THE COVER REMOVED IS NOT COVERED UNDER THE LIMITED WARRANTY.
9. TO AVOID DANGER OF EXPLOSION, DO NOT OPERATE THIS EQUIPMENT IN AN EXPLOSIVE ATMOSPHERE.

HDMI CONNECTION ADVICE

Vantage-HD has two HDMI input ports and one HDMI output fitted as standard. Two further HDMI inputs can be fitted by installing an optional expansion module.

HDMI is essential for the connection of HDMI-only HDTV sources with HDCP encrypted video and audio, such as HD-DVD, Blu-Ray and some HD Satellite/Cable services; however for SD applications Calibre advises you read and carefully consider the information below to help you decide whether you will get better performance in your own install by using component video or using HDMI.

HDMI was intended to be a universally compatible standard where all manufacturers' equipment would seamlessly inter-operate. Unfortunately this is not the case. Due to the huge complexity of implementing the full HDMI-HDCP protocol and associated software and firmware, there are a wide range of products on the market which are technically "compliant" but which do not actually inter-operate reliably. This is further exacerbated by the strictness of the HDMI standard which has led many equipment manufacturers to try to implement work-arounds so as to ensure those products are actually able to perform the functions which their users need and demand. This has unfortunately led to even more incompatibility issues. Many later HDMI systems are better, but there are still many issues with many well-know brands of equipment.

Typically, HDMI compatibility and limitation issues manifest themselves in the following ways:

i) Loss of audio, or corrupted/distorted audio.
ii) Loss of picture and audio or "HDCP patterns" on the screen.
iii) Freezing of the HDMI source or the HDMI display.
iv) Long HDMI-HDCP handshake periods when a new source is selected.
v) Inability to access the native output format of your DVD player through its HDMI output channel.

These are common issues with HDMI equipment which affect may different products in different ways. They do not particularly relate to Calibre's HDMI implementation but in order to try to ease the effects of (i), (ii) & (iii), Vantage-HD has been designed with two different HDMI operating modes available for selection via its Configuration Menu.

Possible modes are:

i) "Repeater" in which the operation mode is set by the HDMI display, whereby Vantage-HD operates as an HDMI Repeater, relaying audio configuration information from the connected HDMI display back to the HDMI sources.

This mode should ONLY be used when an HDMI display is being used AND the audio capability of that HDMI display is also being used. In this mode, the maximum number of audio channels will be determined by the HDMI display's capabilities.

DO NOT use this mode if you do not have an audio-capable HDMI display connected or if you wish to connect an audio processor or amplifier to the S/PDIF Coaxial or Optical audio outputs of Vantage-HD. Incorrect use of this mode can lead to total loss of all HDMI audio from the HDMI inputs, or the audio may be inadvertently limited to 2 channels when multi-channel audio is desired.

ii) "Receiver" where Vantage-HD's own capabilities are readable by the HDMI source equipment. In this mode Vantage-HD appears to the HDMI source equipment to be a display. The capabilities of the HDMI display device, if connected, are not relayed back to the sources.

This mode should ONLY be used when either (a) the HDMI output is not being used or (b) the HDMI output is being used for video only and a separate audio output connection has been made

DO NOT use this mode if you wish to use the audio capability of the HDMI output. Incorrect use of this mode can lead to the HDMI audio output format being incompatible with the connected display, leading to loss of audio or distorted audio.

From firmware revision 1.2.0 it is possible to select the audio channel format which is requested from the source. From firmware 1.2.1 it is also possible to change the native video mode requested from the source. (Note: Not all HDMI sources will obey these requests, this depends on whether they act on the information contained within the EDID and whether they are able to provide the requested audio/video formats.)

HDCP Handshake delays

HDMI inputs can suffer from delays in locking to a new input source, or a source which has just changed resolution or format. These delays are handshake delays which relate to the inherent HDMI-HDCP handshake period between your display device and your source equipment. This is unfortunately outside of the control of Vantage-HD which simply relays HDCP information between display and source, as is mandated by the HDMI-HDCP licensing rules.

This kind of issue affects switchers as well as processors and is a real nuisance. The only legal way around it is not to use HDMI which in many cases is undesirable or impractical.

Can Your HDMI Source Output an Unprocessed Signal?

The ability to access your DVD player's native format depends on whether the designer of your DVD player provided you with the ability to output 480i or 576i from the HDMI output on your player. Unfortunately most players do not have this ability, although some do exist which can.

Native PAL is 576i and native NTSC is 480/484i, so if you are outputting 576p or 480p then this has already been de-interlaced by your DVD player. You can check this by looking at the menus to find out if the line rate is
approx 15KHz (i) or approx 31KHz (p).

A common mistake when using Vantage-HD is for the user to allow the DVD player to de-interlace or scale the signal from its native format. This is very bad for picture quality since the de-interlacing and scaler within Vantage-HD is far better than that within a DVD player itself.

If the picture content has already been degraded up by the scaler within the DVD player, the improvement seen when using Vantage-HD is not as great as when Vantage-HD is given a native format signal. Remember, unless you have a true HD-capable DVD player (a Blu-Ray or HD-DVD player) then your native format is 480i if playing an NTSC DVD and 576i if playing a PAL DVD. All other formats are NOT native since they differ from the format in which the DVD itself was recorded.

Unfortunately many HDMI-capable DVD players refuse to output unprocessed "i" formats on their HDMI connectors, which is very annoying of them since to get best performance you ought to let Vantage-HD do all the processing, including the de-interlacing. This can be a significant reason for using Component instead of HDMI since you generally have more control of Component via the menus on your DVD itself.

Which is better, HDMI or Component? Well, you can argue this forever, we all have our own opinions, but what
matters is which works best for you in your own install with your own gear. If you get best picture performance with HDMI then go ahead and use it, but if you get best performance with Component then use that instead.

We ourselves have tried many DVD players from several leading manufacturers, each with varying results in terms of how "HDMI Compatible" they were. Our Company view is that component video is the preferable connection medium when using a standard definition source such as a PAL or NTSC DVD player since it is so important to output from the player at native resolution.

There is also the issue of how many bits HDMI runs at compared with the component video signal. That depends on the data format which your DVD player chooses to output, but this is something you almost certainly have no control over; many players choose to output RGB which means that on single-link HDMI they are running at 8-bits not 10.

This is our view but even so, if you prefer to use HDMI with your SD source, go ahead and do so - that's what we put the inputs there for!

Please remember, we are not stating that HDMI is useless, or that our HDMI implementation is useless, but we are observing that some SD-originated sources don't work terribly well on HDMI. This is far less likely to be the case for true HD sources where use of HDMI is often mandatory. However, these tend to be newer product designs with better inter-operability. Hopefully this information will allow you to make an informed choice about which connection method is best for your own system.

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